ABSTRACT OF THE DISCLOSURE

A bisphosphonic acid of the general formula (I)

$$\begin{array}{c|c} OH \\ | \\ HO-P=O \\ R^{\bot}-X-R^2 \\ HO-P=O \\ OH \end{array}$$

wherein

- R¹ is H, OH, C₁-C₆ alkyl, C₁-C₆ alkoxy, C₁-C₆ hydroxyalkyl, C₁-C₆ aminoalkyl, C₁-C₆ halogen alkyl,
- X is a direct bond, alkylen group with 1 to 20 carbon atoms, $(CH_3)_m (OCR^3HCH_2)_n (O)_n -, \text{ wherein } R^3 \text{ is H or } CH_3 \text{ and m is 0 or a number from 1 to 6, n is a number from 1 to 10, preferably 1 to 6, and o is 0 or 1, }$
 - -(CR 4 HCH $_2$ O) $_p$ -, wherein R 4 is H or CH $_3$, p is a number from 1 to 10, preferably 1 to 6,
 - (CH₃)_q-(OCR⁵HCH₂),-(O)_s-(CH₃),-,wherein R⁵ is H or CH₃ and q is 0 or a number from 1 to 6, r is a number from 1 to 10, preferably 1 to 6, and s is 0 or 1, and t is a number from 1 to 6,
- R² is a group of the formula (II)

as well as their physiologically compatible derivatives, in particular salts and trimethyl silyl derivatives.